Memorandum

To: Colorado Retirement Savings Board

From: Econsult Solutions, Inc.

Date: October 31, 2019

RE: Fiscal Impact Study Task 2: Impacts by Income Level

Overview

The level of retirement savings accumulation dictates the annual income available to Colorado's elderly residents. This income level impacts eligibility and benefit levels for a number of government programs, with significant expenditure impacts for the state. It also impacts disposable income available for household spending, which has revenue implications for a number of state taxes.

In Task 1, ESI identified the expenditure and revenue categories impacted by Colorado's elderly population and its savings levels. In this memo, we estimate state expenditures and household spending for senior households on a per capita basis as a function of income (Task 2). This analysis forms the foundation of future modeling of the impact of increases in the elderly population over time under baseline conditions (Task 3) and of a scenario in which the income distribution of elderly Coloradans is improved due to increased retirement savings (Task 4).

Modeling of program expenditures by income band below should be understood as preliminary, and can be refined by additional information and data from administering departments.

Income Distribution of Elderly Households

The Colorado State Demography Office produced 2018 projections of the state's future population and household growth, including projections by age bracket. These forecasts provide an estimate of the state's elderly population in households in 2020, which serve as a baseline for forecasted growth into the future.

- Population: Colorado's elderly (65+) population is projected to be 872,364 as of 2020, representing 14.9% of the state's total forecasted population of 5.84 million.

- Households: Elderly residents are projected to be the head of 548,014 households as of 2020, representing 23.6% of the total forecasted households of 2.32 million.

Program expenditures and spending are calculated in this report on a per household basis, since this is frequently the core unit for program eligibility and budgeting. The ratio of elderly population to householders implies an average household size of 1.6, far below the statewide average of 2.5, and consistent with the life cycle of senior households. This dynamic means that elderly households represent a more significant portion of Colorado's households than they represent in its overall population (see Figure 1).

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Figure 1: Projected Colorado Population and Households by Age Bracket (2020)
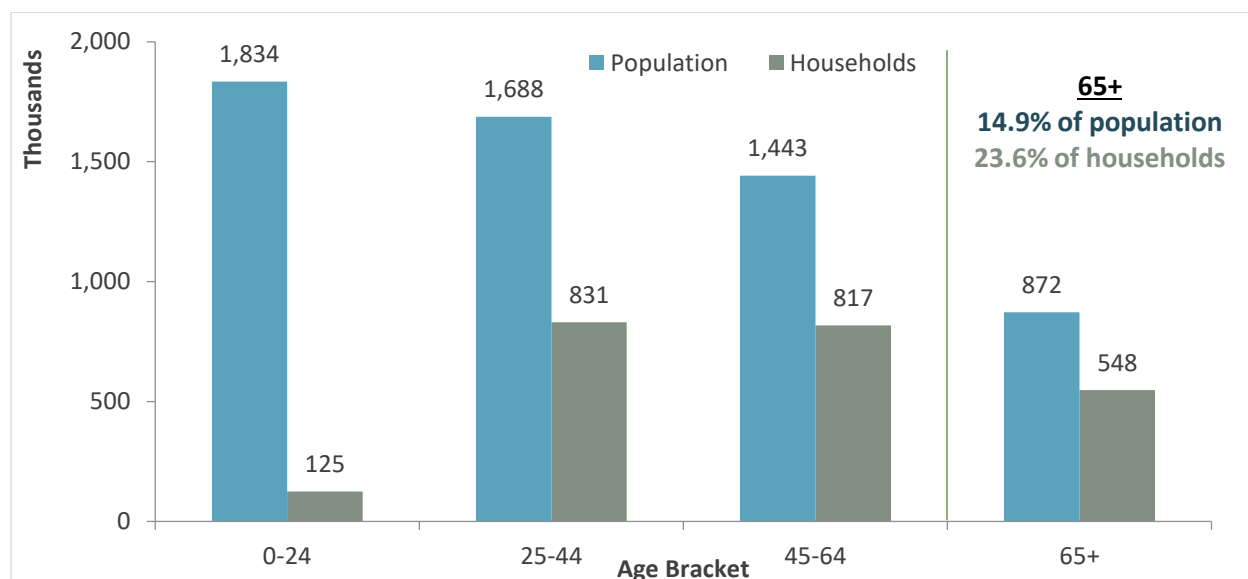
Source: Colorado State Demography Office (2018)

Income data on Colorado's elderly households is drawn from the Annual Social and Economic Supplement to the Current Population Survey (CPS). This survey is conducted by the U.S. Census Bureau and serves as the basis for the federal government's official poverty statistics.

CPS data is aggregated on an annual basis (most recently for 2017) and made available for custom analysis. Through this format, it is possible to isolate household income statistics within a particular state for a particular age cohort at a given point in time. CPS household income data for Colorado's 65+ population from 2010-2017 was analyzed to provide for a sufficient sample size (nearly 3,000 observations).

Two adjustments are then made to these point in time observations to project household incomes as of 2020. First, they are adjusted for inflation into common dollar terms, and are expressed in $2020.[1] Next, they are adjusted for anticipated real growth (above and beyond inflation). This growth is estimated by calculating the annualized rate of growth in elderly incomes for Colorado residents between the 1994-2000 period and the 2010-2017 period in common dollar terms, and extrapolating forward that annualized real growth level to 2020.

Figure 2 below shows the estimated income distribution of Colorado's elderly households in 2020 based on this approach. The median elderly household falls between $60,000 - $65,000 in income, and more than 70% of elderly households fall under $100,000 in annual income.

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[1] Inflation adjustments are undertaken with the commonly used CPI-U price index from Bureau of Labor Statistics. This data is available through the first half of 2019, and is projected to 2020 by extrapolating forward the reported year over year change for the first half of 2019.

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Figure 2: Projected Income Distribution of Colorado 65+ Households (2020)
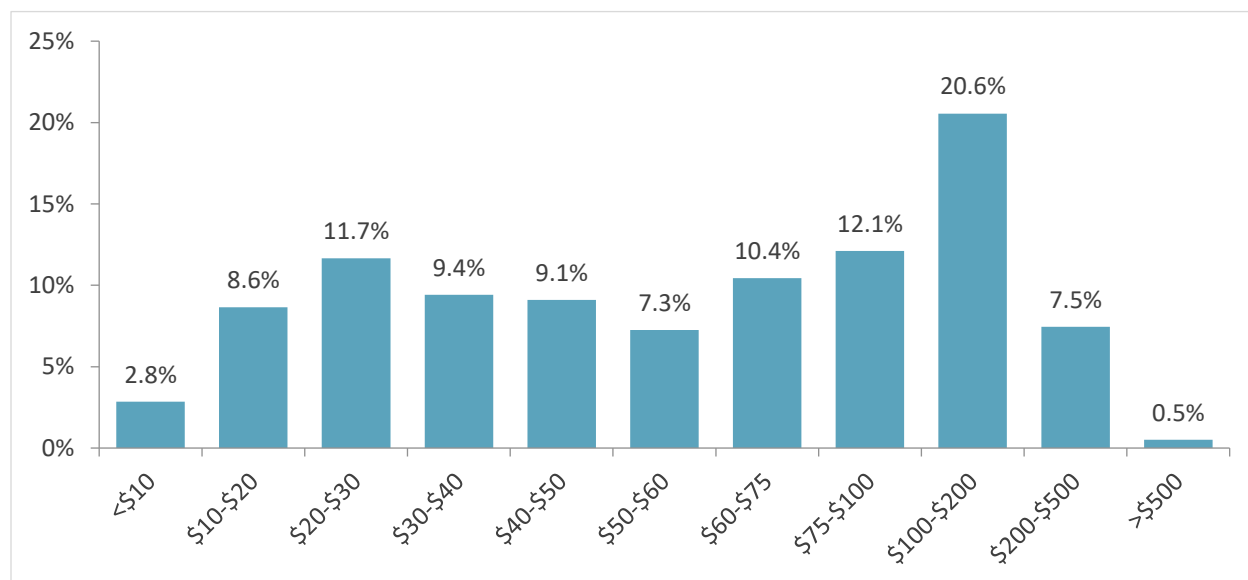
Source: ESI analysis of CPS Data

This income pattern reflects the anticipated distribution of Colorado's 548,000 elderly households as of 2020. This distribution forms the basis for the analysis of program expenditures and household spending by income level.

Program Expenditures by Income Level

Task 1 identified budgetary areas impacted by the size and characteristics of Colorado's senior population. Figure 3 shows anticipated expenditures for these programs in FY 2020 based on budgetary analysis. Columns include:

- *Total expenditures* inclusive of federal and state funds

- *Expenditures from state funds* which include all state-generated revenues (including the General Fund and Cash Fund) and excluding federal funds

- *Expenditures from state funds on elderly residents* which isolates the portion of state-generated funding from these programs attributable to the elderly (65+) population.

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Figure 3: Colorado Expenditures on Senior Population, FY 2020

Program	State Dpt	Total Expenditures ($M)	Est. Expenditures from State Funds ($M)	Est. Expenditures from State Funds on Elderly Residents (65+) ($M)
Means-Tested				
Medicaid	HCPF	$10,536.4	$3,943.0	$863.9
Medicare Modernization Payment	HCPF	$153.4	$153.4	$82.6
Old Age Pension + OAP Medical	DHS	$115.7	$115.7	$101.0
Home Care Allowance	DHS	$9.4	$9.4	$7.4
Dental Health Care	HCPF	$3.0	$3.0	$2.6
Energy Assistance	DHS	$48.2	$4.3	$0.5
Senior-Targeted				
Property Tax Exemption	Treasury	$156.3	$156.3	$152.6
Older Americans Act/SFSS	DHS	$47.8	$32.7	$28.5
Adult Protective Services	DHS	$19.4	$17.3	$11.1
Veterans Community Living	DHS	$54.0	$1.0	$1.0
Total		**$11.14 billion**	**$4.44 billion**	**$1.25 billion**

Source: ESI analysis of budget and program data

Program expenditures per household typically vary by income level. For means-tested programs, household income is a direct consideration in program eligibility and in some cases in benefit levels. Other senior-targeted programs may be more likely to be used by low-income seniors, leading to higher per household expenditures, even if available to all senior households.

Modeling of the relationship between income and program expenditures begins with an understanding of program eligibility and benefit rules. Figure 4 lists the eligibility guidelines for identified means-tested programs.

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Figure 4: Eligibility Requirements of Means-Tested Assistance Programs for Elderly Residents

Program	Eligibility Requirements
Medicaid – Regular Aged Blind and Disabled	Single Colorado residents with a monthly income (countable income includes wages, pension payments, Social Security, Disability Income, veteran's benefits, IRA withdrawals, and stock dividends) of less than $771 and with less than $2,000 in assets (countable assets include cash, ownership of stocks and bonds, and savings and checking accounts; cars, a primary home, and personal belongs are not countable) are eligible for Medicaid. If the applicant is married, the income limit shifts to $1,157 per month and the asset limit increases to $3,000. The same requirements follow if the applicant is married but only one person is applying, except the asset level falls back to $2,000.
Medicaid - Waivers/Home Care Based Services (HCBS)/ Nursing Home Services	Colorado residents that demonstrate a need for nursing home level of care, earn less than $2,313 per month, and have less than $2,000 in assets can receive benefits from the Medicaid waivers programs, HCBS, or the nursing Medicaid programs. If the applicant is applying with a spouse, the income limit doubles to $4,626 per month and the asset limit increases to $3,000 ($4,000 if a couple plans on staying in the same nursing room). If the applicant is married but only one person is applying, the income limit is $2,313 and the asset level reverts to $2,000, but an addition asset level of $126,420 is included for the non-applicant.
Medicare Modernization Payment	Each state is mandated to make a payment to the federal government to reduce Medicare Part D (prescription drug) costs. The state payment is determined by a formula that takes into account the number of Medicare and Medicaid dual enrollees participating in the Part D program. Therefore, eligibility standards for Medicaid and senior income levels impact state costs for this payment.
Old Age Pension (OAP) and OAP Health and Medical Care Program	Colorado residents 60 years or older whose monthly income is deemed less than established minimum acceptable level of monthly income for a particular year. In 2019, eligible applicants must have a monthly income of less than $809 and resources valued at less than $2,000 per individual or $3,000 per married household. The monthly payment amount is determined based on the difference between the established minimum income ($809) and the applicant's total gross income and is thus capped at a maximum benefit payment of $809. Beyond the standard OAP program, the state also provides a smaller health and medical care program for Colorado residents that receive OAP payments but do not qualify for Medicaid.
Home Care Allowance (HCA)	Colorado residents 18 years or older who receive Supplemental Security Income (SSI) or are in the Colorado Aid to the Needy Disabled (AND) program. The Colorado AND program serves Coloradans aged 18-59, so the relevant eligibility requirements for seniors are those required to receive SSI. As of 2019, to be eligible for SSI, applicants can have a maximum individual monthly income of up to $771 and countable resources not exceeding $2,000 per individual or $3,000 per married household.
Dental Health Care for Low-Income Seniors	Colorado residents 60 years or older who have a maximum income of up to 250% of the most current published Federal Poverty Level (FPL) and who do not have or qualify for any other dental insurance such as Medicaid. According to 2019 FPL guidelines, the maximum income for eligible applicants is $2,602 per individual or $3,523 per 2-person household.
Low-Income Energy Assistance Program (LEAP)	Colorado residents who pay home heating costs and earn a maximum family household income no higher than 60% of the state's median income level. In 2019, the established maximum income levels for LEAP were $2,371 per individual or $3,101 per 2-person household.

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These program eligibility rules were then matched with publicly available state or federal information on program participation to develop a preliminary allocation of expenditures by income band. Additional program data may be available through discussions with state officials or policy experts that will help to refine this initial modeling.[2] These allocations by income band are matched to the number of households in each band to ensure that the aggregate state program spending for elderly households matches the estimates in Figure 3.

Initial modeling indicates the program spending is highly sensitive to income levels, declining significantly as household income increases (see Figure 5). Households below the median income (which by definition represent half the population) are estimated to account for around 88% of state program expenditures for elderly households (see Figure 6).

Figure 5: Preliminary Estimates - State Program Expenditures per Colorado's Senior Household (2020)
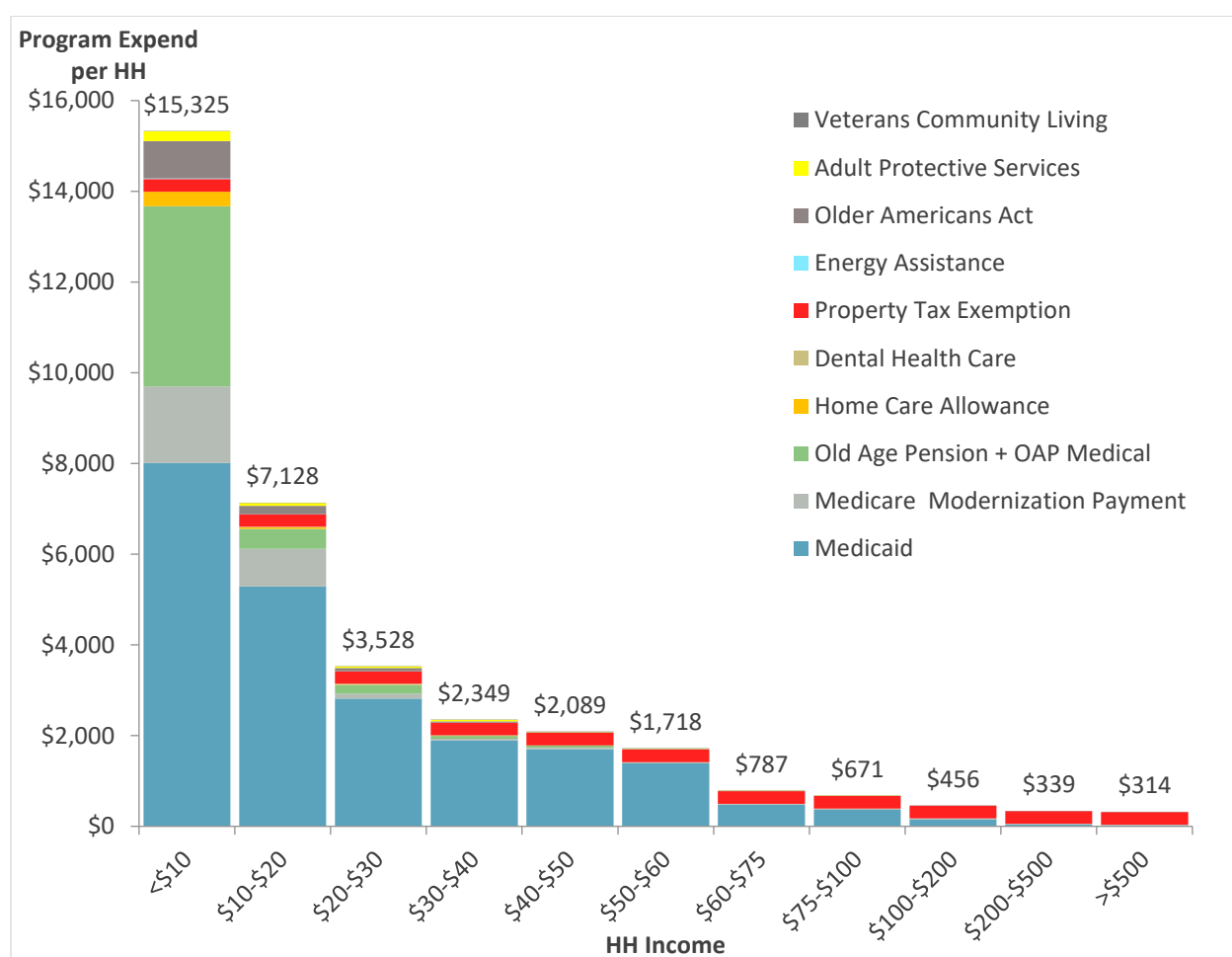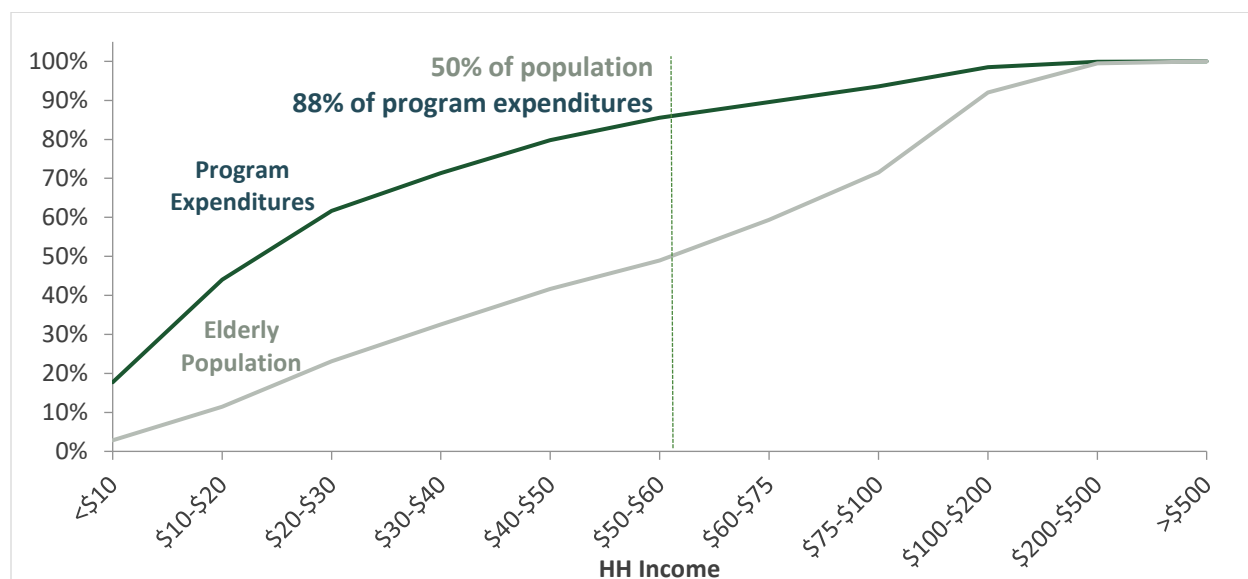

Source: ESI analysis of budget and program data

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[2] In particular, initial modeling of Medicaid costs are based on modeled allocations from a prior analysis in Pennsylvania. Data and insight from the Colorado Health Care Policy & Financing Office will provide a basis to generate a state specific allocation of costs.

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Figure 6: Preliminary Estimates - Cumulative Share of Expenditures by Income Bracket (2020)

Source: ESI analysis of budget and program data

Household Spending by Income Level

The income profile of Colorado's elderly households also has implications for their disposable income and spending patterns. Granular survey data is used to develop spending profiles for elderly households in total and across twelve different expenditure categories. This analysis is based on national data for respondents age 65 or older in the Consumption and Activities Mail Survey (CAMS) within the Health and Retirement Study (HRS).[3]

First, total expenditures are modeled by income band. Survey data on total household expenditures and incomes are "smoothed" using a linear trendline to model expenditures for households up to $100,000 in income, and spending is modeled as a function of the proportion of income for households above $100,000.

Household expenditures in total and as a share of household income are shown by income band in Figure 7.[4] As expected, household expenditures rise with household income (blue line). However, the proportion of income spent by household decreases as income increases (gray line), reflecting higher savings rates for wealthier households.

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[3] The HRS is administered by the University of Michigan, and past data is made publicly available by the RAND Corporation. HRS is a longitudinal study, which surveys the same households over time. National data is used because sample sizes by income band are insufficient at the state level. Importantly, this national data is used only to determine the distribution of spending by category within a given income band. These spending patterns will ultimately be matched to the estimated income distribution of Colorado's senior households, ensuring that spending is scaled to state level income data.

[4] Note that income bands accelerate in size as incomes increase. This leads to an acceleration in both trendlines for income bands beyond $100,000. Shown on a continuous basis, spending growth decelerates with income growth, as wealthier households spend a lower proportion of their available income (as reflected in the gray line).

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**Figure 7: Household Spending by Income Band for 65+ Households**
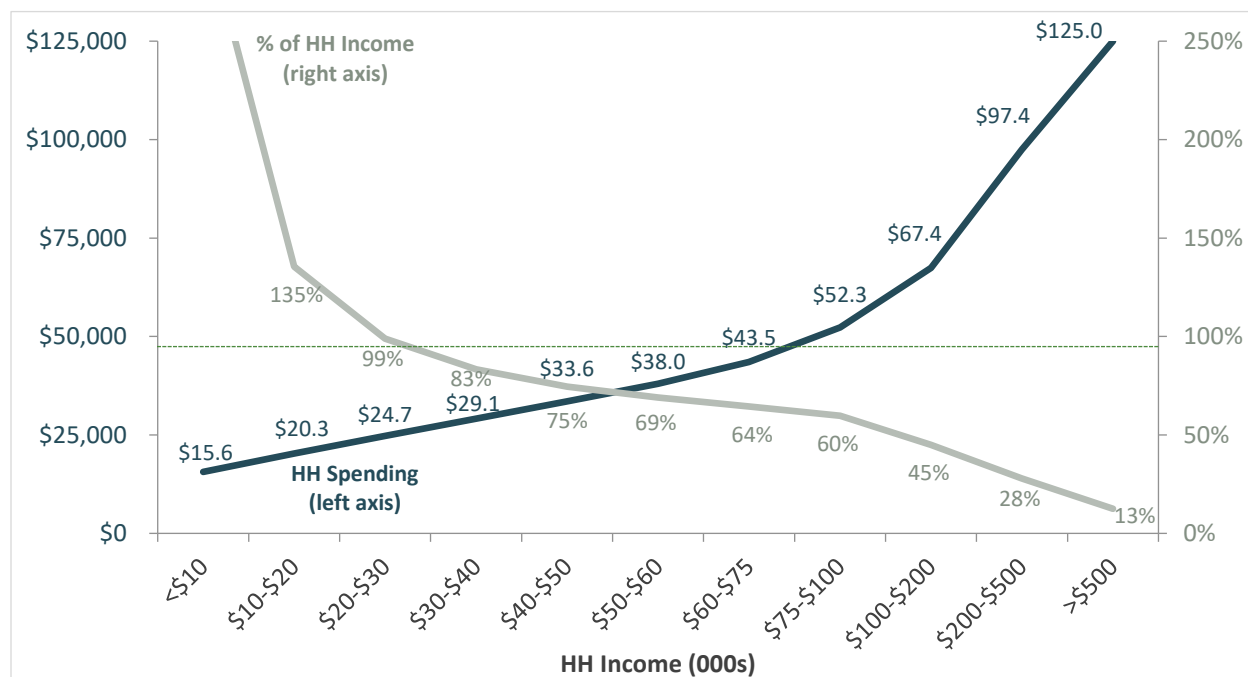
Expenditure patterns are then modeled by category. Twelve types of goods and services included in the CAMS survey data are grouped based on their relationship with income:

- Goods for which spending rises slowly with income are defined as **fixed** goods. These are items for which returns are diminishing as spending increases, with a limited amount of additional consumption as incomes increase. Examples include healthcare, food and utilities.

- Goods for which spending rises at a similar rate to total spending are defined as **variable** goods. Examples include housing and automotive costs.

- Goods for which spending increases rapidly with income are defined as **discretionary** goods. Spending on these items is concentrated among higher income households, which have a greater level of discretionary income. Examples include donations, vacations and hobbies.

Statistical analysis of CAMS data survey data by income band is used to establish the proportion of total household spending allocated to each of these three groupings for each income band (see Figure 8). Spending in each grouping grows as incomes increase, but the relative proportion of spending changes with income levels. For lower Fixed goods (in blue) represent the largest share of expenditures for lower income households, but grow slowly with income. Discretionary goods (in green) represent a small share of expenditures for lower-income households but grow rapidly with income and represent the largest share of expenditures for wealthier households.

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Figure 8: Household Spending Patterns by Expenditure Type for 65+ Households
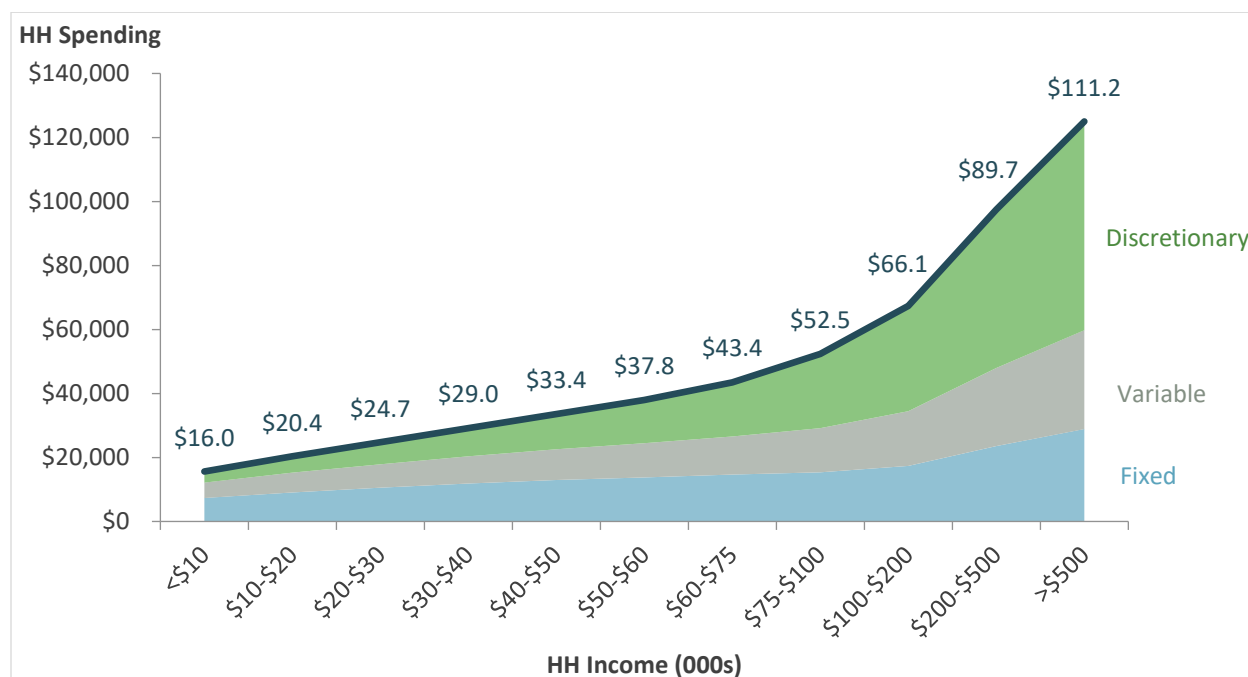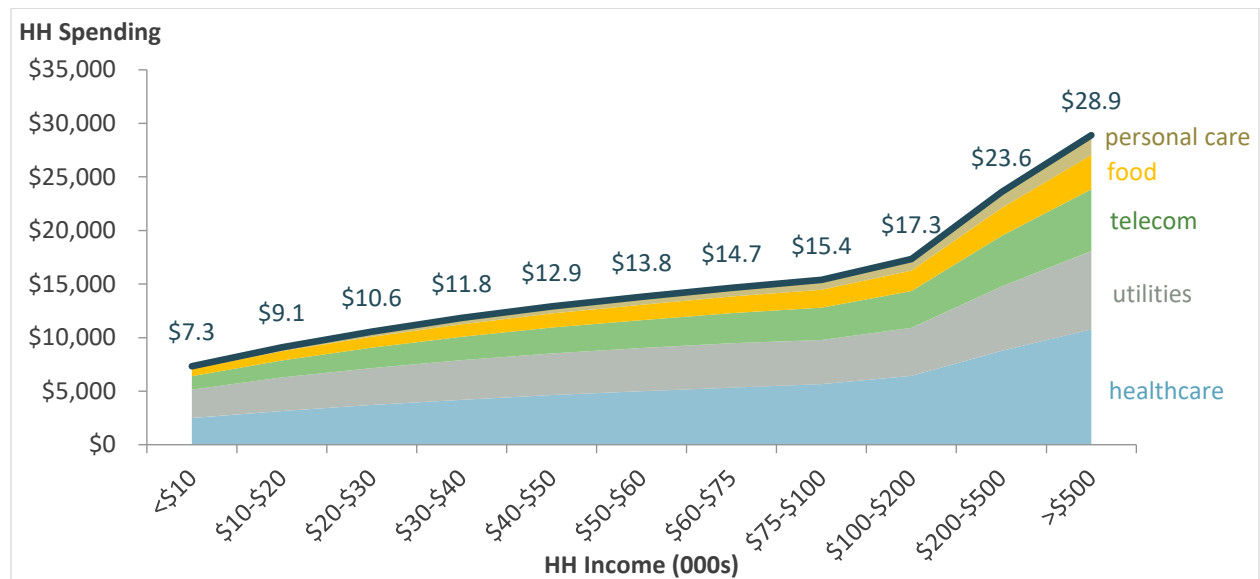

Source: ESI analysis of CAMS data

Modeled expenditures are then allocated to categories of goods and services for each grouping. Allocations are again based on statistical relationships between income and expenditures in the CAMS survey data.

Figure 9 shows spending by income band on fixed goods. The largest expenditure categories are healthcare and utilities. These categories rise slowly with increases in income.

- Average expenditures on fixed goods for households with incomes from $75-$100k total $15,400, roughly 1.5x the average expenditures of households from $20-$30k of $10,600.
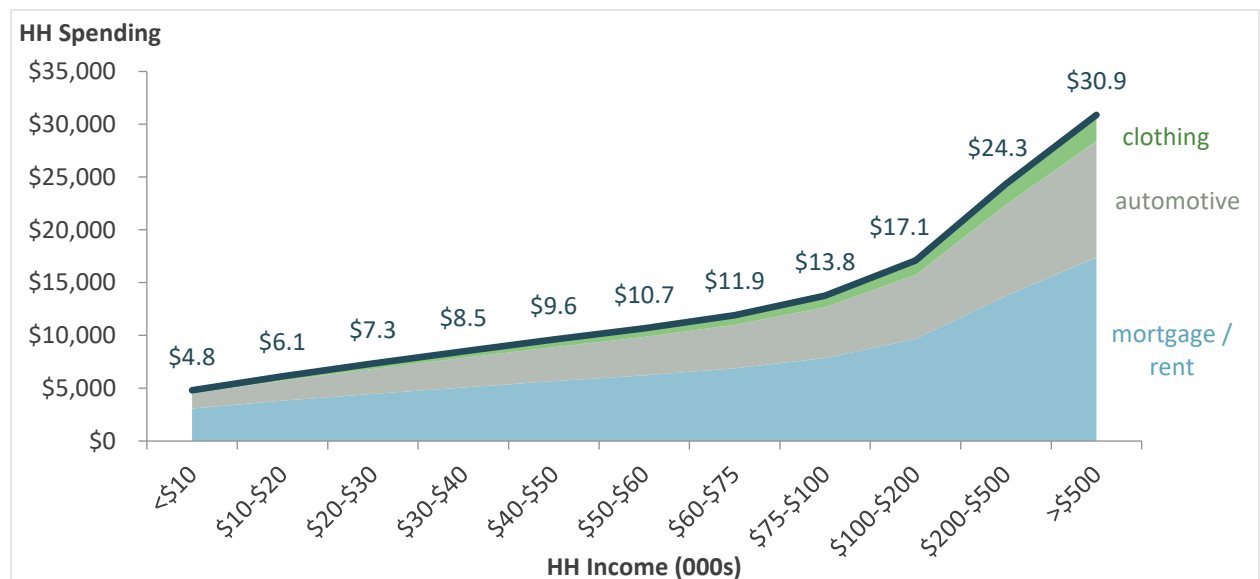
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Figure 9: Household Spending for 65+ Households: Fixed Goods

Source: ESI analysis of CAMS data

Figure 10 shows spending by income band on variable goods. The largest expenditures are healthcare and utilities. These categories rise modestly with increases in income.

- Average expenditures on variable goods for households with incomes from $75-$100k total $13,800, nearly 2x the average expenditures of households from $20-$30k of $7,300.

Figure 10: Household Spending for 65+ Households: Variable Goods
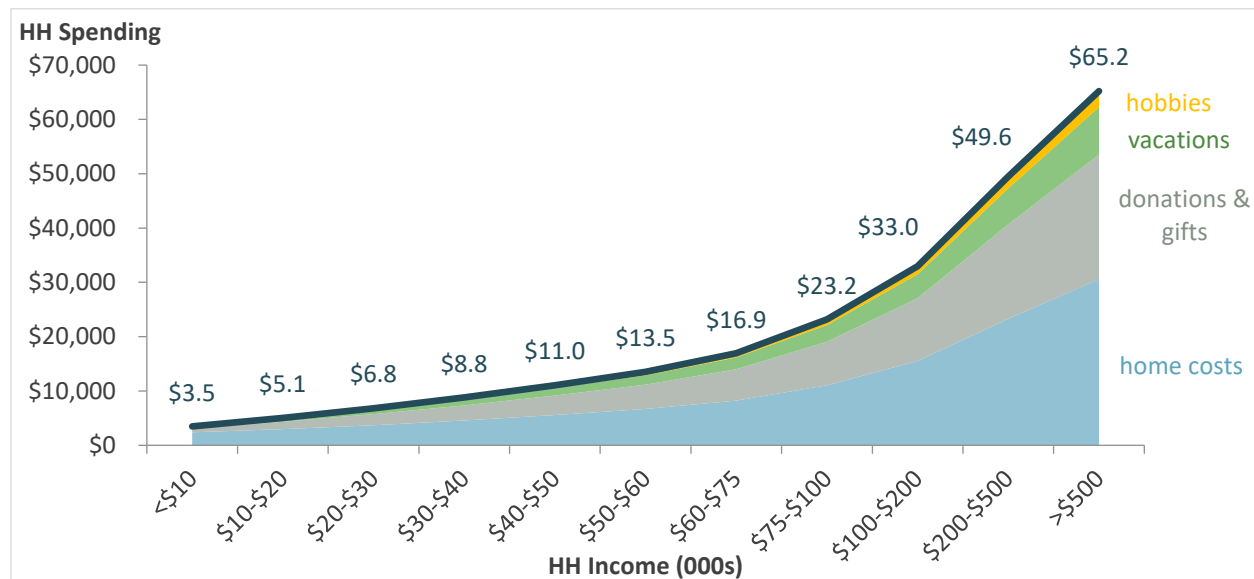

Source: ESI analysis of CAMS data

Figure 11 shows spending by income band on discretionary goods. The largest expenditures are home costs (including home goods, insurance and property taxes) as well as donations and gifts. These categories rise significnatly with increases in income.

- Average expenditures on discetionary goods for households with incomes from $75-$100k total $23,200, nearly 4x the average expenditures of households from $20-$30k of $6,800.

Figure 11: Household Spending for 65+ Households: Discretionary Goods

Source: ESI analysis of CAMS data

Next Steps

Initial modeling has identified areas in which additional data collection is needed to refine estimates of program costs. ESI is seeking to reach out to state staff with expertise on program allocations, expenditures and data in the following areas:

- Department of Health Care Policy & Financing – seeking detailed information on Medicaid enrollment and expenditures

- Department of Human Services – seeking additional program information in senior-targeted programs administered by DHS

- Governor's Office of State Planning and Budgeting – seeking to understand the methodology and any updated analysis related to estimates generated in FY 2018 of state expenditures on aging presenting to the Strategic Action Planning Group on Aging (SAPGA)[5]

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[5] See: http://www.coloradoseniorlobby.org/wp-content/uploads/2018/08/colorado_state_budget_on_aging_april2018_ppt_presentation.pdf

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Along with the refinement of program cost estimates, ESI will undertake modeling to estimate the impact of the anticipated growth in the elderly population (independent of any change in retirement savings and income levels). Projections from the State Demography Office indicate that Colorado is anticipated to add 268,000 senior households between 2020 and 2035, an increase of 49% (see Figure 12).

Figure 12: Projected Colorado Household Growth, 2020-2035
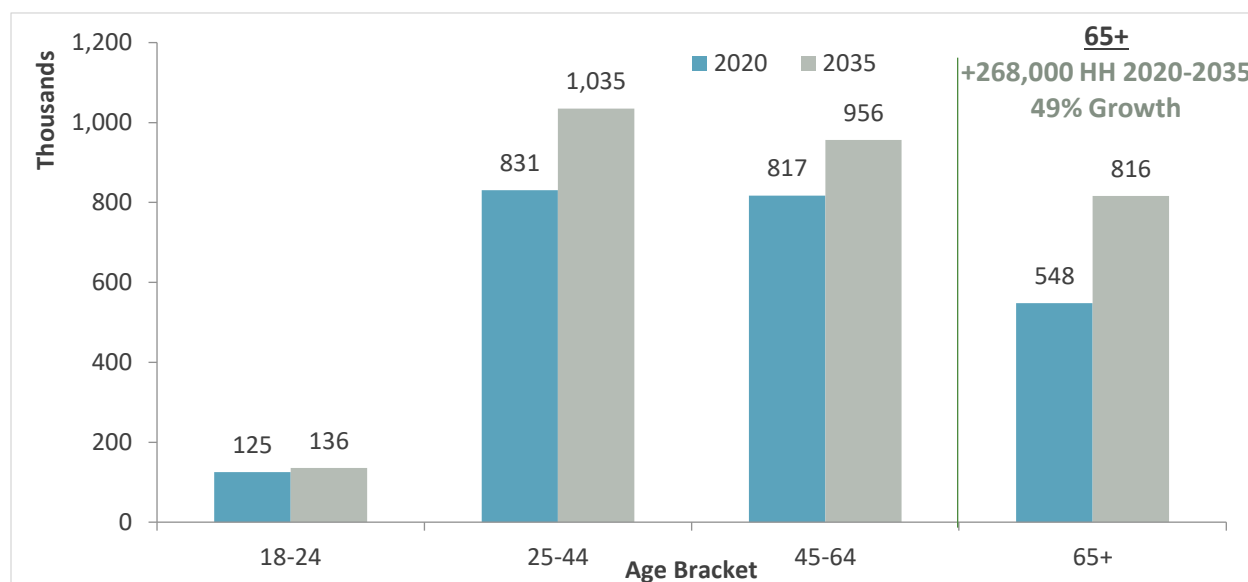
Source: Colorado State Demography Office (2018)

The modeling of changes in program expenditures and household spending due to demographic change will represent a baseline scenario for future economic and fiscal impacts. These baseline results will then be compared to a scenario in which future household income levels for the elderly population are increased, in order to estimate a net difference due to increased retirement savings.